

## CLAIMS

We claim:

1. A system for determining a position of an elevator cab (22) within a hoistway (24), comprising;  
5 a first transceiver (40) supported for movement with the elevator cab that generates a trigger signal (58);  
a second transceiver (42) supported in a selected position relative to the hoistway, the second transceiver generating a locating signal (64) responsive to the trigger signal, the first transceiver receiving the locating signal; and  
10 a controller (32) that determines a location of the cab in the hoistway based upon a characteristic of the received locating signal.
2. The system of claim 1, wherein the trigger signal (58) is a radio frequency signal and the locating signal (64) is an ultrasound signal and wherein the  
15 characteristic of the locating signal used to determine the location is a time that the locating signal travels between the second transceiver and the first transceiver.
3. The system of claim 1, wherein the first transceiver (40) includes a transmitter portion (50) that generates the trigger signal (58) and an energizing signal  
20 (54) that is received by the second transceiver (42), the second transceiver using the energizing signal (54) for electrical energy for generating the locating signal (64).

4. The system of claim 3, wherein the trigger signal (50) and the energizing signal (54) comprise radio frequency signals simultaneously transmitted and one is modulated on top of the other.

5 5. The system of claim 1, including a plurality of second transceivers (42A, 42B, 42C) and wherein each second transceiver has a unique identifier and wherein the locating signal (69) includes information corresponding to the identifier, the controller (32) using the identifier information when determining the location of the cab (22).

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6. The system of claim 5, wherein the controller (32) learns the identification of each second transceiver (42A, 42B, 42C) during a learning pass in the hoistway (24).

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7. An elevator system (20), comprising:

an elevator cab (22) that is adapted to move within a hoistway (24);

a first wireless communicating portion (40) supported for movement with the elevator cab;

5 a plurality of second wireless communication portions (42) supported in selected positions relative to the hoistway, the first (40) and second (42) communicating portions wirelessly transmitting signals (52, 64) to each other; and

a controller (32) that utilizes information regarding the wireless communications between the communicating portions to determine the position of the

10 elevator cab within the hoistway.

8. The system of claim 7, including a plurality of door frames (36)

adapted to be supported along the hoistway and wherein at least one of the second communicating portions (42) is supported on each door frame.

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9. The system of claim 7, wherein the first communicating portion (40)

includes a transceiver (50, 66) that transmits a radio frequency triggering signal (58)

and wherein the second communicating portions (42) respond to the triggering signal to generate a locating signal (64).

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10. The system of claim 9, wherein the locating signal (64) comprises an

ultrasound signal.

11. The system of claim 9, wherein the first communicating portion (40) generates a radio frequency energizing signal (54) that is received by a power generator portion (56) in the second communicating portion (42) that generates electrical energy based upon the energizing signal for transmitting the locating signal  
5 (64).

12. The system of claim 9, wherein each second communicating portion (42) has a unique identifier and wherein the locating signal (64) includes information corresponding to the identifier.

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13. A method of determining the location of an elevator cab (22) within a hoistway (24) in an elevator system (20) having a first wireless communicating portion (40) supported for movement with the elevator cab and at least one second wireless communicating portion (42) at a selected position relative to the hoistway,  
5 comprising the steps of:

generating a trigger signal (58) using the first wireless communicating portion (40);

generating a locating signal (64), using the second communicating portion (42), responsive to the trigger signal; and

10 determining a location of the elevator cab (22) within the hoistway (24) based upon a characteristic of the locating signal (64) received by the first communicating portion (40).

14. The method of claim 13, including using a radio frequency signal as  
15 the trigger signal (58) and an ultrasound signal as the locating signal (64).

15. The method of claim 13, including associating a unique identifier with each of a plurality of the second communicating portions (42) and including identifier information with the locating signal (64).

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16. The method of claim 13, including generating an energizing signal (54) using the first communicating portion (40) and converting the energizing signal into electrical energy at the second communicating portion (42) for generating the locating signal (64).